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MEMORANDUM

DATE: November 2, 2010

TO: Jeff Fetters, START-3 Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Data Summary Check,**
South Tacoma Channel Seep Site, Tacoma, WA

REF: TDD: 10-05-0004 PAN: 002233.0569.01SI

The data summary check of 3 water samples collected from the South Tacoma Channel Seep site located in Tacoma, Washington, has been completed. Diesel range organics (Ecology Method NWTPH-Dx) analyses were performed by the Manchester Environmental Laboratory, Port Orchard, Washington.

The samples were numbered: 10354001 10354002 10354003

No discrepancies were noted.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

SUBJECT: Data Release for Total Petroleum Hydrocarbon - Diesel Range Extended Analysis Results from the USEPA Region 10 Laboratory

PROJECT NAME: South Tacoma Channel Seep

PROJECT CODE: TEC-985A

FROM: Gerald Dodo, Supervisory Chemist
Office of Environmental Assessment, USEPA Region 10 Laboratory

TO: Brandon Perkins, SAM
Office of Environmental Cleanup, USEPA Region 10

CC: Renee Nordeen
Ecology and Environment, Inc.

I have authorized release of this data package. Attached you will find the Total Petroleum Hydrocarbon-Diesel Range Extended (TPH-Dx) results for the South Tacoma Channel Seep project samples collected 09/01/10. For further information regarding the attached data, contact me at 360-871-8728.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

QUALITY ASSURANCE MEMORANDUM FOR ORGANIC CHEMICAL ANALYSES

Date: November 2, 2010

To: Brandon Perkins, SAM
Office of Environmental Cleanup, USEPA Region 10

From: Gerald Dodo, Chemist
Office of Environmental Assessment, USEPA Region 10 Laboratory

Subject: Quality Assurance Review for the Total Petroleum Hydrocarbon - Diesel Range Extended Analysis of Samples from the South Tacoma Channel Seep Project

Project Code: TEC-985A
Account Code: 10T10P302DD2C10ZZLA00

CC: Renee Nordeen
Ecology and Environment, Inc.

The following is a quality assurance review of the data for total petroleum hydrocarbon - diesel range extended (TPH-Dx) analysis of water samples from the above referenced site. The preparation and analyses were performed by the EPA Region 10 Laboratory ESAT contractor using modified EPA SW846 methods 3535 and Washington State Department of Ecology Method NWTPH-Dx.

This review was conducted for the following samples:

10354001 10354002 10354003

1. Data Qualifications

Comments below refer to the quality control specifications outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). No excursions were required from the method Standard Operating Procedure.

All measures of quality control met Laboratory/QAPP criteria.

For those tests for which the EPA Region 10 Laboratory has been accredited by the National Environmental Laboratory Accreditation Conference (NELAC), all requirements of the current NELAC Standard have been met.

2. Sample Transport and Receipt

Upon sample receipt, no conditions were noted that would impact data quality.

3. Sample Holding Times

The concentration of an analyte in a sample or extract of a sample may increase or decrease over time depending on the nature of the analyte. The holding time maximum criteria applied for the extraction of acidified water samples is 14 days from the time of collection. Extracts have a holding time maximum of 40 days from the time of preparation. All

samples were extracted and analyzed within these criteria.

4. Sample Preparation

Samples were prepared according to the method.

5. Initial Calibration/Continuing Calibration Verification (CCV)

Initial calibration was performed on 06/22/10 for #2 diesel and motor oil. Percent relative standard deviations (RSDs) of the calibration factors met the criteria of ≤20% or the correlation coefficients met the criteria of ≥0.99.

The CCV for effluent samples met the criteria for frequency of analysis and relative retention time (RRT) windows. The percent accuracies met the criteria of 85-115%.

6. LCS/LCSD

Data for laboratory control sample/laboratory control sample duplicates (LCS/LCSD) are generated to provide information on the accuracy and precision of the analytical method and the laboratory performance. The LCS/LCSD recoveries were within the criteria of 60-140% with a relative percent difference (RPD) of ≤20.

7. Blank Analysis

Method blanks were prepared and analyzed with each sample extraction batch to evaluate the potential for laboratory contamination and effects on the sample results. Target analytes were not detected in the blanks.

8. Surrogate Spikes

Surrogate recoveries are used to help in the evaluation of laboratory performance on individual samples. The surrogate recoveries met the criteria of 50-150%.

9. Duplicate Sample Analysis

Duplicate sample analyses are performed to provide information on the precision, in the matrix of interest, of the analytical method. Duplicate analyses were performed using sample 10354001. TPH-Dx was not detected in this sample so precision could not be evaluated.

10. Matrix Spike

Matrix spike analyses are performed to provide information on the effects of sample matrices toward the analytical method. A matrix spike analysis was performed using sample 10354001 (S1). The recovery of #2 diesel met the criteria of 60-140%.

11. Compound Identification/Quantitation

The initial calibration functions were used for calculations. Reported quantitation limits were based on the initial calibration standards and sample size used for the analysis. All manual integrations have been reviewed and found to comply with acceptable integration practices. TPH-Dx was not detected in the samples.

Diesel range organics is a collective term for petroleum products that generally elute before motor oil but after gasoline from the gas chromatograph.

Motor oil range organics is a collective term for any petroleum product that chromatographically consists primarily of an unresolved envelope of compounds generally eluting after #2 diesel. Included in the definition are hydraulic fluids, motor oils, lubricating oils, cutting oils, mineral oils, transmission fluids, etc.

12. Data Qualifiers

All requirements for data qualifiers from the preceding sections were accumulated. Each sample data summary sheet and each compound was checked for positive or negative results. From this, the overall need for data qualifiers for each analysis was determined. In cases where more than one of the preceding sections required data qualifiers, the most restrictive qualifier has been added to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier in light of the project's data quality objectives. Should questions arise regarding the data, contact Gerald Dodo at the Region 10 Laboratory, phone number (360) 871- 8728.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable. No value is reported with this qualification.
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. No value is reported with this qualification.

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	9/1/10	**9:40:00**
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid	
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354001	
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	SP01GW			

			Result	Units	Qlfr
ORG					
Parameter	: Tot Petroleum Hyd, Diesel extended				Container ID : A10
Method	: NWTPH-DX	Diesel range organics			Analysis Date : 9/9/2010
Prep Method	: 3535A	Solid Phase Extraction			Prep Date : 9/7/2010
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.096	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	95	%Rec	

Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354001
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Duplicate
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : A11
Method : NWTPH-DX Diesel range organics — Analysis Date : 9/9/2010
Prep Method : 3535A Solid Phase Extraction — Prep Date : 9/7/2010

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.098	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	94	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354001
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Matrix Spike
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Tot Petroleum Hyd, Diesel extended				Container ID : A12
Method	: NWTPH-DX	Diesel range organics			Analysis Date : 9/9/2010
Prep Method	: 3535A	Solid Phase Extraction			Prep Date : 9/7/2010
Surrogate(s :	629992	Pentacosane	92	%Rec	
	*400009	TPH-GC/Diesel Range Organics	82	%Rec	

Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	9/1/10	**10:15:00**
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid	
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354002	
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	SP02GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : A4
Method : NWTPH-DX Diesel range organics — Analysis Date : 9/9/2010
Prep Method : 3535A Solid Phase Extraction — Prep Date : 9/7/2010

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	93	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	9/1/10	**11:27:00**
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid	
Project Officer:	BRANDON PERKINS	**Sample Number:**	10354003	
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	SP03GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : A4
Method : NWTPH-DX Diesel range organics — Analysis Date : 9/9/2010
Prep Method : 3535A Solid Phase Extraction — Prep Date : 9/7/2010

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.098	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	95	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	LCS0250A
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	LCS
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Tot Petroleum Hyd, Diesel extended				Container ID :
Method	: NWTPH-DX	Diesel range organics			Analysis Date : 9/9/2010
Prep Method	: 3535A	Solid Phase Extraction			Prep Date : 9/7/2010
Surrogate(s :	629992	Pentacosane	87	%Rec	
	*400009	TPH-GC/Diesel Range Organics	76	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	LCS0250B
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	LCSD
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Tot Petroleum Hyd, Diesel extended				Container ID :
Method	: NWTPH-DX	Diesel range organics			Analysis Date : 9/9/2010
Prep Method	: 3535A	Solid Phase Extraction			Prep Date : 9/7/2010
Surrogate(s :	629992	Pentacosane	91	%Rec	
	*400009	TPH-GC/Diesel Range Organics	82	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	OBW0250A1
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 9/9/2010
Prep Method : 3535A Solid Phase Extraction — Prep Date : 9/7/2010

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	91	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-985A

Project Code:	TEC-985A	**Collected:**	
Project Name:	SOUTH TACOMA CHANNEL SEEP	**Matrix:**	Liquid
Project Officer:	BRANDON PERKINS	**Sample Number:**	OBW0250A2
Account Code:	10T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 9/9/2010
Prep Method : 3535A Solid Phase Extraction — Prep Date : 9/7/2010

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	84	%Rec	